



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,116	10/27/2003	Shusaku Okamoto	MAT-8478US	2586
23122	7590	04/17/2008		
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			EXAMINER MC CLOUD, RENATA D	
			ART UNIT 2837	PAPER NUMBER
			MAIL DATE 04/17/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/694,116

Applicant(s)

OKAMOTO ET AL.

Examiner

RENATA MCCLOUD

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11, 12, 18 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11, 12, 18 and 20-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims rejected under 35 U.S.C. 103(a) as being unpatentable over Graham (US 5200679) in view of Daly (US 4605354).

Claims 11, 20: Graham teaches an apparatus/method comprising determining a direction of an external force acting upon an object (releasing/delivery direction = opening direction or holding/non-delivering direction= closing direction) the external force exclusive of a grasp force by the robot grasping the object (releasing/delivery direction = opening direction); an object (fig. 5: 71) grasping unit (fig. 1:11; col. 2:63-3:8) an external force detecting section (col. 2: 63-3:8); a determining unit (20 or 80) for determining when the force the said direction is equal to or greater than a threshold, (col. 3: 24-41,57-60; col. 7:40-57, col. 8:59-64) if the change in force in said direction is caused by a person taking away the object and due to a first condition which is delivery of the object (col. 3: 24-41,57-60; col. 7:40-56, 8:9-31, releasing= delivering) or due to a second condition which is non-delivery of the object (col. 8:33-55, holding the object = non- delivery); a grasp-force control section (44) outputting a grasp-force relaxing signal for releasing the object when the change in force in said direction is due to the first condition (col. 7:40-56, 8:9-31, releasing the object delivers the object) and a grasp force strengthening signal for strengthening a grasp force of the object when a change in the external force in said direction is due to the second condition (col. 7:58-8:31 holding the object). They do not teach a force resulting from another cause. Daly teaches determining a change in the force

is greater than or equal to a threshold if the change the external force results from another cause and due to a second condition which is non delivery of the object (col. 4:60-5:20; fig. 2: 16,17). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Graham to determine when the force is greater than or equal to a threshold as taught by Daly in order to prevent slippage.

Claims 23, 24: Graham and Daly teach the limitations of claims 11 and 12. Referring to claims 23 and 24, Daly teaches the other cause is gravity (abstract, col. 3:49-4:9, col. 4:60-68)

3. Claims 12,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graham in view of Daly as applied to claims 11 and 20 above, and further in view of Andeen et al (US4637736) or Hill et al (US 3904234).

Claims 12, 21: Graham and Daly teach the limitations of claims 11 and 20. Referring to claims 12 and 21, Graham teaches the determining unit determines that the change in the external force is due to a request for releasing the grasped object (col. 3: 24-41,57-60; col. 7:53-8:31, releasing= delivering) when the change in the external force is equal to or greater than the predetermined threshold (col. 3: 24-41,57-60; col. 7:40-57, col. 8:59-64), releases the grasped object when the change in the external force is determined to be due to the request for releasing the grasped object (col. 7:65-8:31). Graham and Daly do not teach determining, after releasing the grasped object, that the change in the external force is due to 1) the first condition which is the delivery of the grasped object when a dynamic frictional force in a gravity direction caused by a downward movement of the grasped object is not detected or 2) the second condition which is the non-delivery of the grasped object when the dynamic frictional force in the gravity direction caused by the downward movement of the grasped object is detected.

Andeen et al teach determining, after releasing the grasped object, that the change in the external force is due to a the first condition which is the delivery of the grasped object when a dynamic frictional force in a gravity direction caused by a downward movement of the grasped object is not detected or 2) the second condition which is the non-delivery of the grasped object when the dynamic frictional force in the gravity direction caused by the downward movement of the grasped object is detected (col. 5:3-23, fig. 4:112, determining slippage) .

Hill et al teach determining, after releasing the grasped object, that the change in the external force is due to a the first condition which is the delivery of the grasped object when a dynamic frictional force in a gravity direction caused by a downward movement of the grasped object is not detected or 2) the second condition which is the non-delivery of the grasped object when the dynamic frictional force in the gravity direction caused by the downward movement of the grasped object is detected (col. 2:29-45, determining slippage). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Graham and Daly to determine a slip taught by Andeen et al or Hill et al, in order to prevent slippage of the grasped object.

4. Claims 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Graham in view of Daly as applied to claims 11 and 12 above and further in view of Chao et al (US 5847529) or Hollbrooks (US 6692049)

Claims 18,22: Graham and Daly teach the limitations of claims 11 and 20. Referring to claims 18 and 22, they do not teach attention is called to an outside when the grasp force signal for releasing the object is outputted. Chao et al teach in a case of releasing the grasping force, an alarm is issued to an operator/outside (col. 1:20-28, 1:62-2:5). Hollbrooks teaches in a case of releasing the grasping force, an alarm is issued for inspection/outside (col.11: 37-60). It would

have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Graham and Daly to strengthen the grip as taught by Chao et al or Hollbrooks, in order to indicate that the manipulator is in need of repair.

Response to Arguments

5. Applicant's arguments with respect to claims 11,12,18,20-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RENATA MCCLOUD whose telephone number is (571)272-2069. The examiner can normally be reached on Mon.- Fri. from 5:30 am - 2pm.

Art Unit: 2837

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Renata McCloud/
Examiner, Art Unit 2837

/R. M./
Examiner, Art Unit 2837